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ATARI USER

Vol. 2 No. 2

July 1987

A5

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APR 87

Arcade prices lopped

ATARI's latest games package STV Software has slashed prices on its current and future arcade-style programs.

Recently released *Joe & the Maclean Carvers* will now cost £19.99 on disc and £9.99 on cassette instead of £19.99 and £7.99.

The same price press will apply to *Qing* - due out late July - and *Pothole Panic* (featuring *Joe*) which is due for release in the autumn.

"After talking to distributors leading our products we have decided to go for quantity sales instead of holding up prices," said Peter O'Connell, managing director of STV Software (021 775 1682).

A look at the latest charts shows that budget games are among the biggest sellers today and we have to compete with them.

This includes new release *Qing* features an alien who walks into on earth and must locate and dig for the special crystals he needs to reform his space ship.

Pothole Panic will be a follow-up to *Joe & the Maclean Carvers* with *Joe* lost underground and having to dynamite his way to the surface.

Atari geared up for games market boon

There is going to be a double upsurge in the games machine market this year and Atari is determined to be ready for it.

It is no wonder the company brought out the 800 computer games system to complement its 1300C and redesigned 26 million selling 2600VCs.

We expect a major boost in the video console sector during the last quarter of 1987 if not before - a company spokesman told *Atari User*.

"We believe the average age of prospective buyers is getting younger because the top market for such £100 hardware was not catered for



Atari's 800 games system

properly in 1986 or 1988.

Thus many there are a lot of under 16s out there who aren't really ready for a proper video but are keen to get their hands on a games machine.

"And it doesn't hurt. *Atari* is a company that we already

have a games software range that is second to none."

Atari originally estimated it would sell 150,000 800 game systems and games cartridges in 1987. But 1986 figures had to be hurriedly revised when advance orders for 70,000 units were placed in the first few weeks of the year.

The company began talking about selling at least \$50-\$60 - and possibly a quarter of a million - games machines in 1987.

And, with orders for 900 machines currently standing at 80,000 units, even this figure looks like being exceeded before the beginning of next year.

Competition is hotting up

Atari faces some stiff competition - in what is expected to be a bonanza market for games machines - this year, particularly in Christmas.

The company's new console sales will shore up against opposition from Nintendo and Sega.

Mastertronic has just signed a deal for the UK distribution rights to the Sega Game Console and discs. This is a very important

project for us - consoles are going to be very big sellers this Christmas.

But Atari would appear to have the edge over the competition.

The Nintendo Entertainment System - marketed in the UK and Europe by Mattel - costs £79.95 and the Sega Game Console £95 compared to the Atari 800 at £89.95.

And while the Sega machine will be launched

with only 12 games cartridges and the Nintendo with about 37, Jack Travençolo has already promised the 800 will be backed by more than 400 pieces of software.

In addition Atari has the lead in producing High Street stores to stock its new product.

Others - Carpa and Megasoft - are virtually seen to give their space to the 800, and W H Smith another probable outlet.

Micros in action

The thriving Shepperton Atari User Group took its message on to the streets in June to show people its micro in action.

An estimated 50,000 went on to Telford Town Centre to demonstrate of Atari hardware and software during the six day exhibition.

It is the latest community venture by the group which has won praise for the way it promotes computing advice and attendance to local voluntary organisations.

Serious attraction

Mini Office 3 is well on its way to becoming the biggest selling software package ever produced for the Atari 8-bit range.

Launched at the Atari Computer Show in London in April, the product was an instant hit with the thousands of visitors who flocked to the Mosaic.

Several standstillers praised the package and they were impressed by its enthusiastic reception and

runner sales.

The £19.95 disc - with its word processing, spreadsheet, database, graphics, camera and label printing modules - is continuing to dominate its sector of the market.

Mike Jones of leading distributor Software Express told *Atari User*: "Mini Office 3 is a fantastic product which is why it is selling very well in all parts of the country - I even had an order for 10 from Ireland the other day." And



John Hensley of Specs Distribution said: "There is nothing to compare with Mini Office 3 in the Atari 8-bit market. The micro 3 competition is American and twice the price."



Commodore 128D Output

Shortages hit 8 bit sales

shortage suggests Atari 8 bit dealer Computashop says it is being driven out of the 128D market because the price of the machine has increased and supplies of vital peripherals have dried up.

Computashop managing director Steve Burke told Atari User: "In our full wrapup Atari has pushed the recommended retail price of the 128D from £89 to nearly £130 and at the same time stopped providing disk drives and printers."

"We are looking between £5,000 and £7,000 a week in lost sales because the 128D disk drive and 1027 and 1050 printers are not available."

"These peripherals are essential to our 128D sales strategy and we are trying desperately to find alternative replacements at prices our customers can afford - but without much luck."

"To combat the Atari price increase Computashop is currently launching the 128RE with four arcade games cartridges. Microboarder joystick with many variables and Atari 1300E keyboard for £125 - £5 less than the official RRP for the machine alone."

"This adds up to a saving of over £80 and Steve Burke has been about 50 Atari 128D's to surplus and after they are sold we are not going to carry on selling the machine at its own for

£130 it just isn't worth our while."

Atari UK spokesman Peter Walker defended the company's decision to increase the price of the 128D: "When the present management took over it whined and pined it didn't like," he told Atari User.

"For instance a word processing bundle including the 1202, 1050 printer and 1025 printer with software was being sold at cost."

The management has also continued this loss-making strategy and because of new confidence in the product is now changing what the market expects."

Steve Burke has got it wrong about supplies of disc drives and printers. We have adequate stocks of 1050 drives and 1027 and 1050 printers in the UK to last until the end of this year, based on current demand.

In September we are launching a replacement for the single 1050 disc drive - the XG2551 double sided drive.

"And later on we will bring out the XMM801 dot matrix printer as a replacement for current printer models."

"In the last quarter of this year we will also be selling a sports bag full of 128RE and games software - but we are not doing any more bundling."

THE GALLUP CHART TOP 20 ATARI SOFTWARE

THIS MONTH	LAST MONTH	TITLE (Software House)	PRICE
1	•	GAUNTLET US Gold	9.95
2	•	ATTACK OF THE MUTANT CAMELS Mastertronic	1.99
3	•	MICRO RHYTHM Purfect	1.99
4	•	DEATH RACE Atari	2.99
5	▼	COLONY Bulldog	1.99
6	•	PREMESIS Mastertronic	1.99
7	•	GRIDRUNNER Mastertronic	1.99
8	▲	ARPAOID Imagine	8.95
9	▲	GUM LAM Mastertronic	1.99
10	▼	MAX SIMULATION Code Masters	1.99
11	▼	LEADERBOARD Atari/US Gold	9.95
12	▼	FOUR GREAT GAMES Micro Video	3.99
13	•	STRATOSPHERE Playtex	1.99
14	▼	SILENT SERVICE Mastertronic/US Gold	9.95
15	▲	WARHAMER Purfect	1.99
16	▼	LA SMAT Mastertronic	2.99
17	▼	NINJA Mastertronic	1.99
18	•	MINI OFFICE II Datacube	13.95
19	▼	GREEN HORNET Imagine	3.95
20	▼	CRYSTAL RAIDER Mastertronic	1.99

Compiled by Gallup/Microscope

Dealers enter the chart this month at number one, while Microsystem from Purfect and Mini Office II from Datacube offer non-games packages for your Atari - removal of both are in this month's issue.

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We described a gadget that responds to your voice in the March 1987 issue of *Atan User*. Now here's one that gives your Atan the power to talk back.

It is relatively inexpensive, straight forward to construct and easy to program. You can use it as a signalling device for visually handicapped people, an entertainment aid for students with reading difficulties or in

any situation where visual or text output is inappropriate.

It also has great novelty value. How about an adventure game with talking monsters or a speak and spell program for young children?

Now we'll describe how to build and test it and then finally we'll cover its operation in detail, showing how you can easily add speech output to your own Atan programs.

Figure 1 shows the circuit. Because the gadget draws over 100 milliamperes at full output it cannot be powered directly from the joystick ports as some external supply is needed. R8, IC1, C1 and C2 are included so that you can use any AC source around 50 to 60V provided it can deliver at least 100 milliamperes.

The transformers supplied with it all drive 800 interfaces and 410 program recorders will work satisfactorily, and for that reason we've suggested using a power socket which will accept the plugs found as standard on those transformers.

Don't use the power pack which supplies your computer itself as there could be a danger of overload. In any case, the PSU supplied with 80/82 machines won't cope with this gadget, since it delivers 100 A for at 0V full transformer such as Maglin FL305 works well and has the advantage of being fully shielded to reduce the risk of mains shocks. You can of course buy a transformer for mounting permanently in the case. Maglin type YH40 is suitable. Current draw is around 300mA even when the unit is not speaking, so battery operation is not practical.

IC2 is the voice chip and it can produce 64 different speech sounds called allophones which when

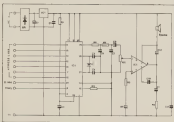


Figure 1 The circuit

Turn to Page 12 B

Take the tedium out of office chores

ALAN GOLDSBRO reviews a package useful in both home and office



THE Atari 8-bit computer, so long seen as only a games machine, takes on a new role with a custom-perfected integrated system consisting of the six most essential pieces of business software in a single, user-friendly integrated package.

Mini Office II, from Database Software, has taken the 8-bit business market by storm. It puts together a range of programs you'd expect to be available only as more powerful simulations.

The package comes on disc and is supplied complete with a well-written manual. There are six constituent parts to Mini Office II: A word processor, database, spreadsheet, graphics system, communications system and a label printer program.

Each of the six modules is self-contained and functions independently of the others, yet remains faithful to the design philosophy of an integrated suite of programs.

The solid base from which Mini Office II operates is the framework of an excellent menu-driven system which is standard throughout the six modules.

They ease the user into a friendly environment and yet include the many different and comprehensive features based on sophisticated security and efficiency.

When you boot the disc you are presented with the main menu where you select the required module using the cursor keys and Return. The computer ejection the disc for the module to be loaded into ram, and each one has its own series of menus from which options are chosen.

Looking at the word processor first, there are lots of further options avail-

able. Text can be created in either 80 or 40 column mode, edited and then presented in 80 columns on another screen.

There are so many features in the word processor that there isn't room to describe them all here. Suffice to say that standard features such as Search and Replace, Cut and Paste, Justification, Insert and Delete modes are available.

Other features are Headers and Footers, automatic Page numbering, Bold text and Caps conversion to name just a few. Some features that you would expect to find on more expensive word processors are missing but the features in the Mini Office II word processor are more than adequate for most situations.

Many of the commands are available from the built-in macros but the programmers have also included a mechanism for embedding the majority of commands directly into your text without even leaving the editing screen. In common with all the mod-

ules your work can be output to either an Epson compatible printer or directly to an Atari 1050 dot matrix printer. Print commands are available from the menu or can be embedded into text.

They can cope with different styles of print-line spacing, margins, header and footer offsets and number of copies. Text files which are too large to fit in ram can be chained together when printing out.

In the field of business software, databases are essential. The one in Mini Office II allows five types of field: Alpha, decimal, integer, date and formula. It's the first field which probably has the greatest power with not only the standard operators but many others often only found in spreadsheets.

Creating your database and entering records are done from separate screens and both are very obvious. Records can be scrolled forward and backwards either one entry or in groups of 10 or 100. Individual records can be marked manually or automatically, and marked records can be used to create a sub database from your main one which can be saved to disc as a separate file.

Searching for data follows the same easy style. Select an entry field using standard operators such as equal to, not equal to, greater than or less than. Sorting data can be progressive all over your fields and indexed in ascending or descending order.

Mini Office II has some of the best facilities seen in an 8-bit database. Not only can you calculate formulae fields on screen but any numerical field can be treated across a whole data file.



Figure 1: Word processor screen

Merging with another Mini Office II database file presents no problems.

When it comes to printing records you'll find all the commands and structures that were so evident in the word processor. Records can be printed vertically or horizontally across the page and printer comments can be typed in to discuss style and such.

As you'd expect from an integrated package, all the data can be used in either the word processor or label printer modules. I wish all databases could be this easy to use.

Mail merging is one of the additional nifty tricks of Mini Office II. By using the word processor to define your letter you can send many people the same letter personalizing each by merging their names and addresses from your database to the letter.

An essential feature of a spreadsheet office environment is the ability to forecast cash flow and financial viability. Spreadsheets are ideal for this and the one in the Mini Office II package is more than capable of looking after all that number crunching.

You enter data into cells by placing the cursor on top of the cell, typing in your value and pressing Return. Columns can be used up to 18 characters wide and all the standard operators found in most spreadsheets are available. Calculations — (as most part of any spreadsheet) — can be carried out automatically or manually.

Cells may be highlighted, justified and formatted to accept the usual types of commands and styles associated with large numbers and monetary applications.

Formulas can be replicated either absolutely or relatively. Grand totals are at both. Some of the more powerful spreadsheet functions of more powerful spreadsheets are lacking but the features available are adequate.

Loading and saving the Spreadsheet is standard and manual save is also available. Cells can be jumped by using the effective Goto command and files can be created and frozen to assist input. The formulas operator menu can be displayed on either screen or printer and the requested range of tabulations are available for the printer routine.

An impressive help screen is available for the numerous commands associated with managing the modules and to wrap up this section there is the opportunity to save up to 20 rows or columns to disc in a form that enables the Graphics option of Mini Office II to read in as a data set.

The Graphics module provides a

powerful yet simple way to get your computer to display changing data in an easy to understand form. It can be used in two ways. By entering data directly from the keyboard or by loading spreadsheet data that has been previously stored on disc.

Options include Bar Line and Pie Charts with further options of 3D or 3D display. Up to three data sets can be used to create your graph and each data set can hold between two and 25 values.

Scaling of graphs can be manual or automatic with a grid option for manual clarity. Text can be added and overlaid



Figure 2: Graphics options

immediately on the screen. Options relevant only when in 3D bit programs add a visual effect to an already impressive display of graphical data representation.

Plots can be selected from any of the three data sets with a range of fill options to ease identification of data. The bar graphs can display all three data sets at once either side by side or stacked. Negative values can be displayed visually and accurately.

Individual screens can be saved to disc and if required, printed out any time by Mini Office II or independently by a suitable graphics program. Alternatively, the stored screens can be used in other applications such as a slide show.

Again, print options are for both Epson and 1024 printers plus you can print to a disc file for insertion into a word processor file between text. Here is that for integration?

Going online with Mini Office II takes all the hard work out of linking your computer to another. The Mini Office II Communications system has been designed to work with both the Asim 803 interface and suitable modern and the Miracle Technology's DataLink RS232C interface cable and modem.

Standard protocol options such as

Microlink, Telexlink, Xmod, at 300BPS and 1200/1800 baud rate are part of the main package. Should the option protocols between other systems can be undertaken and links to bulletin boards worldwide can be set up with Mini Office II.

One powerful feature of this module is the many keys which allow you to define a single key press to send some long and complicated messages to the remote computer. Up to two keys can be defined with 240 characters reserved for each message.

The module is ideal for running systems such as Modems or bulletin boards, but unfortunately can't be used to access Finnet!

The final module is the Label printer — a handy feature in itself but when combined with information from your database creates a very easy label for.

Labels can easily be designed on screen using the editor incorporating information from your database if required. You can produce address labels, stock labels or anything you set your database up to do. Alternatively, the module can work independently from the database to produce up to a 100 repeated labels.

The label printer can print text or data fields anywhere on the label. Their length and width can be controlled and they can be printed more than one width wide. Label formats can be saved to disc so that you've created a design that can be accessed at any time. Text prints and printer commands are menu options that can enhance the quality of your labels.

There are a number of features not yet discussed that are available in every module. The screen colour can be changed right through the whole 256 variations. There is an overtable overtable option when saving files and a mini data set in memory allowing you to use directions and use associated functions such as delete and format.

Without doubt Database Software has broken all records in producing an excellent suite of programs useful both in the home or small office. The result is a superb blend of stand alone programs packaged together for the price of a single program. It may lack a few of the features of more expensive packages but at £79.95 it is the best value business program available for the 5 bit Am market.

Product: Mini Office II
Price: £79.95
Developer: Database Software Europe
Europe 48 Channel Road, Abingdon,
Oxfordshire OX1 2EF

NEWSLETTER

Take off with MicroLink

THE British Airline Pilots Association (BALPA) – has turned its golden jubilee by joining MicroLink.

Trade union for 5,000 commercial pilots, BALPA negotiated with 30 UK airlines and a similar number of foreign flag operators who employ its members.

"We celebrate our 50th birthday this year so it seemed an appropriate time for us to join in the age information technology," said a spokesman. "Until now we've depended on the telephone – our office didn't even have telefax."

"A very high proportion of our members are computer and communications enthusiasts when they're not flying. They'll be happy now. MicroLink has provided facilities for two-way electronic messaging between themselves and BALPA."

Apart from improving contact with our members, we'll be able to use electronic mail and telefax to communicate with airlines and other pilot associations throughout the world.

Legal advice goes online

MICROLINK has moved yet another world first by taking on board a unique electronic legal and financial service for firms and individuals.

Insight provides round the clock legal advice help with tax and VAT problems and insurance cover against the risk of litigation.

It serves a wide range of personal and business needs resulting from major problems like disputes with neighbours up to full scale Customs &

Custom investigations

A team of 50 solicitors and barristers provides a 24-hour legal advisory service. Any legal problem can be dealt with either by electronic mail or telephone. Full written advice on complicated matters is provided within 24 hours.

There is a legal fees insurance package covering solicitors and barristers fees, court costs, witness expenses and opponents costs in certain cases.

Personal financial advice

on banking, pensions, insurance and tax – is offered during office hours and available in most cases through a local number. Written reports can be provided within 24 hours and consultants are available for personal visits.

Business membership of Insight also includes a wide range of specialist assistance for companies, covering such areas as profit insurance, tax cash flow forecasting, pension scheme analysis and employee benefits.

Companies can also buy an Insured Revenue and VAT protection service, in the event of In depth tax (RATH) or VAT investigations.

Company accountants can draw an advice from former Insured Revenue and Customs & Excise inspectors and get professional representation at hearings and tribunals. Up to 125,000 pounds professional fees for preparing a case is included in the protection.

Two brand new Insight services will benefit from the immediacy of MicroLink communications. The first provides on line request quotations and information for property buyers.

The other supplies details about commercial finance, venture capital and other forms of commercial funding for established businesses and start-up schemes also.

Insight, operated by Investment Marketing Services, is an electronic sub-division of the RMC legal and tax advisory service which has been operating for seven years and has half a million UK subscribers.

Calling all subscribers

THE latest technological advance on MicroLink allows subscribers to enjoy all the common errors benefits of telecopying for as little as 30p a day.

Thanks to a link-up with British Telecom's national telecopying service, it means that MicroLink electronic mail and telefax messages need no longer wait in queues resulting from distribution. All you want to put in the middle of working hours can be sent when it's empty.

As soon as an email or telefax message arrives the telecopying service is automatically alerted and the subscriber gets a 'buzzer' alert.

The same procedure takes place in the opposite direction – messages to other people can't be opened or overlooked if the addressee carries a telecopying device.

There are also all the other advantages of telecopying – like keeping more documents in touch with their base.

CONSORTIUM FOR COMMS

A UNIQUE association of community groups involved in computing has gone on line with MicroLink.

Hedley Info Tech Consortium is a non profit company formed by 45 adult education, leisure, training schemes and local voluntary organisations in the London borough.

It supports members

organisations – including the City of London Polytechnic – that use computers for administrative, marketing, data, loans and services in programming, business computing, design and desktop publishing.

Consortium executive director David Chetham and MicroLink will help our development of socially

useful applications of new technology – particularly the potential for development of a local online community database.

"We envisage starting with a directory of education, training and leisure information then gradually allowing local organisations to operate and build on ours to set up closed user groups."

RHYTHM AT THE RIGHT PRICE

HOW do you fancy a digital drum kit for £1,999? I thought not!

MicroRhythm is a product of the ingenuity of 21st Systems – the boys responsible for *Replay* and *Mini Master* which are reviewed in the July issue of *Mean* User. It uses samples of actual drums which were recorded with their *Replay* system at a rate of 10444.

In fact, *Replay* need that because you'll see that the *DigitalRhythm* program supplied with the cartridge is virtually identical to *MicroRhythm*. In case you missed it – inform us you – here is a few more details.

The main screen uses a system of

IAN WAUGH reviews *MicroRhythm's* – digital drums.

pull-down menus, containing the following options: Pattern, Play, Edit, Tempo, Song and File. Pattern lets you select any one of 28 patterns. You can save them all at once or individually.

Edit displays a grid containing the selected pattern with the drums listed

down the left. You highlight a drum with *Softest Shift* moves the cursor on the grid to the right, and a drum is toggled on and off the master position with *Start*. The pattern could have been a lot easier, but it works fine.

The program loads with eight drum sounds, but only two can sound at the same time. The bass, snare, and tom and low-tom are mutually exclusive as are the cowbell, closed hi-hat, open hi-hat and hand claps. You can still write some good rhythms though.

Having programmed a few patterns you move on to the Song menu to string them together. A song can hold up to 28 steps and each consists of a pattern number and the number of times it is to repeat. If the pattern number is 0, the song will jump to the pattern number given in the repeat part of the step. If both are 0 the song will restart.

File is where you save and load songs and patterns.

Some of the possibilities you have to go through are a bit weird. For example, why can't you select another pattern from the edit screen and why can't you play a pattern from there too?

Sell what can you say for £1,999? I've got to your nearest software shop and buy one.

Product: *MicroRhythm*
Price: £1,999
Supplier: Amsoft Software, 440/44 New
Oxford Street, London W1C 1PS
Tel: 01 753 8708



The title screen



Editing a pattern



The song screen

The Atari 520 ST gives you the power to defeat deadly enemies, slaughter monsters and outwit cruel captors.



Gauntlet — **Atari** Walk into a world of monsters, traps, mystery and peril in this old standby, playing fantasy game.



The Wolf — **Atari** Walk in 1990. Century-long story of a medieval western with gunnery, smuggling and mystery.



Demolition — **Atari** Build it better, fighting rollers to get past the gullies, obstacles and obstacles, to reach the other side. And then just the way it is.



Advanced — **Atari** The story of a new game, and your world's most, enough to handle it. A perfect play, perfect.



Star Raiders — **Atari** Star Raiders are the only best-selling through out of the Atari 520. It's the only command the 'Star Raiders' — it's the only one.



Wings — **Atari** Take the controls of a Command 100 or General 200, with high-speed 3D graphics, for real with soundings and accuracy. It's the only one that's the only one.

But it's not all fun and games.



Atari Fax — **007** Professional word processor featuring a rich editing and formatting of graphics. Includes full text for full control of font features etc.



Superbase Personal — Powerful software for the storage of data. Includes full text and a database power. Easy to setup, flexible, powerful and a complete facility.



Atari Photo Editor — Powerful software for the processing of photos. Includes a full range of editing tools and a full range of effects. Includes a full range of effects.



Atari Spreadsheet — Powerful software for the storage of data. Includes full text and a database power. Easy to setup, flexible, powerful and a complete facility.

Mixing business with pleasure is no problem with an Atari 520 ST that when you've got over 1,000 software titles to choose from.

You'll find all the latest games and a huge range of business titles from the top business software houses. And the range is growing all the time.

You won't be short of power either. The Atari 520 ST is twice as powerful as most business models.

So you'll be able to create spectacular colour graphics. Even animate them to make your own films. If you're musically minded, you can compose and play a full symphony.

Or for those who'd rather write programs than make the 520 ST supports over thirty programming languages.

In fact whatever you're looking for in a computer, you'll find it in the Atari 520 ST.



ATARI 520 ST
WORKS HARD — PLAYS HARD



HINTS TIPS

Vegas Jackpot

HERE is the arrangement of each reel so you know how many symbols are needed for the chosen winnery.

Reel 1	Reel 2	Reel 3	Reel 4
7	7	7	7
6	6	6	6
5	5	5	5
4	4	4	4
3	3	3	3
2	2	2	2
1	1	1	1
0	0	0	0
...

David Baxter and Penny Spink

Summer Games

ON the 100 screen, wiggle your joystick round and round instead of left and right or up and down to get fantastic scores — Rick Jordan, Hook Norton, Dave

Spellbound

SMASH the glowing crystals by stepping it and use the broken pieces to feed the engaged couple. The mirror displays your energy and the objects at the bottom of the screen.

The crystal ball can be used to locate people except when you are in the left — Paul Shaw, Graham, Eric

Goonies

ON the first screen move one of the Goonies up to the attic where the printing press is and start printing some money. When the woman goes to get the money leave the other Goonies down, go behind the water tank and jump desperately at it. This knocks it over and makes the trap door open.

On the second screen, when the bat has gone past you, get on the lift and go to the bottom. Change to the other Goonie and move him to the end and when the bat has gone past again get on the lift and go down, but drop off on the ledge above the ladder.

Move the Goonies at the bottom onto the washers and this will move the desk. Move the other Goonie on to the barrel and move him out a bit. Move the first Goonie to the left, dodge the bats, jump on to the ledge and get the key. This will open the door of the bottom.

On the third screen move one Goonie up to the man who is having the shower and move him

across the pipe, being careful of the steam.

Move the other Goonie to the pipe and then move the first Goonie down. A man with a gun will appear and you move the Goonie who is nearest the thinnest pipe up to the second set of ladders. The pipe will burst and you can get out.

On the fourth screen, don't move anywhere until the bats (that arrive when the bells ring) leave. Then trap the cannon balls by jumping on and off the little objects that come off the reel stand on the object at the bottom of the reel and the stars will disappear one at a time.

On the fifth screen collect all the skulls and push them to where there are already two skulls. To get on to the skulls from the reel, bounce on the object underneath the bones.

You need five skulls on the ladder to allow you to move to the next screen — Marcus Edson, Maths

Leaderboard

IF you are having problems taking a lot of shots, getting past the gunner, press Break and you will go past the hole with the amount of shots you have taken registered on the Leaderboard. This can be used to get to your favourite holes quickly — Rick Jordan, Hook Norton, Dave

Mercenary

WHILE you are holding it, the extra time bonus is used to repair damaged buildings. Just fix at the remains of a building and it will rebuild instantly.

The metal deflector shields who owns a particular building by the playing a colour in the message window. Green is a palmy building, blue is a mechanical building and red shows no one owns it — Paul Shaw, Graham, Dave

Montezuma's Revenge

AT the start get to the top of the rope. Keep pressing Space, and the crystals down and you will go down into a different room — David Baxter and Penny Spink

Game

Ninja

AFTER collecting all the stars in secret trapdoor should appear on the top of the Gray Wolf. Use through it and you should be in a first room. Kill all the people and collect the last ring. After doing that go back to the beginning — it completes the game — Paul Shaw, Graham, Dave

Superman

POSITIONING the Break key correctly. Superman when he is in the air can fly. But be careful — this can get you into more trouble if you're unlucky — Rick Jordan, Hook Norton, Dave

Star Raiders II

WHEN you are in the other star system and short on energy, don't have enough time to go to a space station to refuel, get energy by going to the sun. Once you are there you will have to get away quick or you will melt. If you do get away you will find your fuel tank is full — Paul Shaw, Graham, Dave

To help you destroy
the aliens



and defeat the
taxman,

we've massacred
the price.



For a limited period, the Atari 520 STM is even more of a knockout than usual. We're offering it for just £449.95 (inc VAT) complete with 5M354 disk drive, 5M125 mono monitor, a mouse worth £24.95 and 1st Word, worth £49.95.

So as well as saving you from the enemy, the 520 STM will also save you £184. You'd better hurry though, because it won't be long before our stocks are wiped out.

ATARI 520 STM
WORD HARD PLAYS HARD



Atari, the Atari logo and Star Raiders are registered trademarks of Atari Inc.

Dump that screen . . .

Print your favourite pictures with this routine from KEVIN MILFORD

THE Apple II/III graphics printer has never been loaded up by many programs to produce screen dumps, and with the exception of Mike Office II has never been fully compatible with most word processors on the market.

At last, here is a utility that allows you to produce hard copies of your favourite pictures either on an Apple II/III or laser-compatible printer.

To use this utility you must have DR75 pictures already stored in file format on disk. The kind of file produced by pressing the Insert key while using AtariSoft or any of the Mega Flavour files that have been converted are good examples of pictures to use.

When you run the utility the screen will go blank for a few moments while the program initializes, then you will be asked to input your printer type - Apple or Epson.

After entering A or E you are asked for the picture filename which must always be entered in the form: D FILENAME.EXTENSION. The program will then load the picture and display it in four slices of eight.

If the luminance is unknown it is not how you want it, press C and a high level will appear. You can then set the luminance value of the colour registers created by pressing the extreme keys 0 to 3 inclusive.

The program takes the key presses in pairs, so if you press 0 and 1 the values of those two registers will be exchanged. You may continue to press the values until the luminance of the picture is to your liking.

Once you have the picture how you like it, press Escape followed by P. Two beeps will be heard and the picture will then begin to be printed out after a slight pause. It takes a while to print out a full screen and it is printed four lines at a time with a pause in the next seven columns calculated.

Eventually the program works by

converting seven columns of screen display into four lines of printer information. This is achieved by using the colour register channels gained by the LOCATE command to index a series of arrays which will give the pin device pattern required for the luminance obtained.

This is then fed into a further series of arrays ready for printing. The screen display contains four lines across - 0 to 3, 10 and 15.

The array REG contains the addresses of the colour registers 0 to 3 in sequence, so that REG(0) would return the value for register 0. Lines 100 to 125 obtain the colour register used at a screen location which is divided by three to give a luminance range of 0 to 3 (black to white).

Each pixel is four pixels one long and two pixels high. Figure 1 shows the seven pin patterns used to represent the luminance range 0 to 3. As the printer head advances seven pins seven screen columns are interpreted with four printer rows at the same time.

This gives rise to the high resolution of pattern arrays. Holding the display equivalent of the pin patterns, for example PAT100 0, holds the first column of pattern 0.

Each screen array has a direct relationship with one of the printer row arrays PR1 to PR4. The contents of the pattern arrays are sent to the printer by lines 275 to 310 of the program.

The CPU statements in the first PRINT statements set the printer up for high density (GRAPHICS) printing.

Line 315 prevents the program going into the abstract mode and line 320 indicates the end of the loop. The FOR NEXT loops of X and Y control the area of the screen being drawn. Until the picture has been printed the program returns you back to line 10. If you want to print another picture, just type RUN.



Figure 1 - Apple II/III printer pin pattern

PROGRAM BREAKDOWN	
100-105	Set graphics mode and variables
106-115	Find out your printer options and the elements of the plotter
116-125	Draw the outer square and draw out dimensions using
126-135	Sort points away
136-145	Send the array values to the printer
146-155	Prevent the computer going into stand-by mode
156-165	Initiate end of loop for the size of screen being mapped

[illegible][illegible]

Received 10 November 2004; accepted 12 January 2005

Feature

1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058 2059 2060 2061 2062 2063 2064 2065 2066 2067 2068 2069 2070 2071 2072 2073 2074 2075 2076 2077 2078 2079 2080 2081 2082 2083 2084 2085 2086 2087 2088 2089 2090 2091 2092 2093 2094 2095 2096 2097 2098 2099 2100 2101 2102 2103 2104 2105 2106 2107 2108 2109 2110 2111 2112 2113 2114 2115 2116 2117 2118 2119 2120 2121 2122 2123 2124 2125 2126 2127 2128 2129 2130 2131 2132 2133 2134 2135 2136 2137 2138 2139 2140 2141 2142 2143 2144 2145 2146 2147 2148 2149 2150 2151 2152 2153 2154 2155 2156 2157 2158 2159 2160 2161 2162 2163 2164 2165 2166 2167 2168 2169 2170 2171 2172 2173 2174 2175 2176 2177 2178 2179 2180 2181 2182 2183 2184 2185 2186 2187 2188 2189 2190 2191 2192 2193 2194 2195 2196 2197 2198 2199 2200 2201 2202 2203 2204 2205 2206 2207 2208 2209 2210 2211 2212 2213 2214 2215 2216 2217 2218 2219 2220 2221 2222 2223 2224 2225 2226 2227 2228 2229 2230 2231 2232 2233 2234 2235 2236 2237 2238 2239 2240 2241 2242 2243 2244 2245 2246 2247 2248 2249 2250 2251 2252 2253 2254 2255 2256 2257 2258 2259 2260 2261 2262 2263 2264 2265 2266 2267 2268 2269 2270 2271 2272 2273 2274 2275 2276 2277 2278 2279 2280 2281 2282 2283 2284 2285 2286 2287 2288 2289 2290 2291 2292 2293 2294 2295 2296 2297 2298 2299 2300 2301 2302 2303 2304 2305 2306 2307 2308 2309 2310 2311 2312 2313 2314 2315 2316 2317 2318 2319 2320 2321 2322 2323 2324 2325 2326 2327 2328 2329 2330 2331 2332 2333 2334 2335 2336 2337 2338 2339 2340 2341 2342 2343 2344 2345 2346 2347 2348 2349 2350 2351 2352 2353 2354 2355 2356 2357 2358 2359 2360 2361 2362 2363 2364 2365 2366 2367 2368 2369 2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383 2384 2385 2386 2387 2388 2389 2390 2391 2392 2393 2394 2395 2396 2397 2398 2399 2400 2401 2402 2403 2404 2405 2406 2407 2408 2409 2410 2411 2412 2413 2414 2415 2416 2417 2418 2419 2420 2421 2422 2423 2424 2425 2426 2427 2428 2429 2430 2431 2432 2433 2434 2435 2436 2437 2438 2439 2440 2441 2442 2443 2444 2445 2446 2447 2448 2449 2450 2451 2452 2453 2454 2455 2456 2457 2458 2459 2460 2461 2462 2463 2464 2465 2466 2467 2468 2469 2470 2471 2472 2473 2474 2475 2476 2477 2478 2479 2480 2481 2482 2483 2484 2485 2486 2487 2488 2489 2490 2491 2492 2493 2494 2495 2496 2497 2498 2499 2500 2501 2502 2503 2504 2505 2506 2507 2508 2509 2510 2511 2512 2513 2514 2515 2516 2517 2518 2519 2520 2521 2522 2523 2524 2525 2526 2527 2528 2529 2530 2531 2532 2533 2534 2535 2536 2537 2538 2539 2540 2541 2542 2543 2544 2545 2546 2547 2548 2549 2550 2551 2552 2553 2554 2555 2556 2557 2558 2559 2560 2561 2562 2563 2564 2565 2566 2567 2568 2569 2570 2571 2572 2573 2574 2575 2576 2577 2578 2579 2580 2581 2582 2583 2584 2585 2586 2587 2588 2589 2590 2591 2592 2593 2594 2595 2596 2597 2598 2599 2600 2601 2602 2603 2604 2605 2606 2607 2608 2609 2610 2611 2612 2613 2614 2615 2616 2617 2618 2619 2620 2621 2622 2623 2624 2625 2626 2627 2628 2629 2630 2631 2632 2633 2634 2635 2636 2637 2638 2639 2640 2641 2642 2643 2644 2645 2646 2647 2648 2649 2650 2651 2652 2653 2654 2655 2656 2657 2658 2659 2660 2661 2662 2663 2664 2665 2666 2667 2668 2669 2670 2671 2672 2673 2674 2675 2676 2677 2678 2679 2680 2681 2682 2683 2684 2685 2686 2687 2688 2689 2690 2691 2692 2693 2694 2695 2696 2697 2698 2699 2700 2701 2702 2703 2704 2705 2706 2707 2708 2709 2710 2711 2712 2713 2714 2715 2716 2717 2718 2719 2720 2721 2722 2723 2724 2725 2726 2727 2728 2729 2730 2731 2732 2733 2734 2735 2736 2737 2738 2739 2740 2741 2742 2743 2744 2745 2746 2747 2748 2749 2750 2751 2752 2753 2754 2755 2756 2757 2758 2759 2760 2761 2762 2763 2764 2765 2766 2767 2768 2769 2770 2771 2772 2773 2774 2775 2776 2777 2778 2779 2780 2781 2782 2783 2784 2785 2786 2787 2788 2789 2790 2791 2792 2793 2794 2795 2796 2797 2798 2799 2800 2801 2802 2803 2804 2805 2806 2807 2808

0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
0	1	2	3	4	5	6	7	8	9

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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Year	1990	1991	1992	1993	1994
1990	100	100	100	100	100
1991	100	100	100	100	100
1992	100	100	100	100	100
1993	100	100	100	100	100
1994	100	100	100	100	100
1995	100	100	100	100	100
1996	100	100	100	100	100
1997	100	100	100	100	100
1998	100	100	100	100	100
1999	100	100	100	100	100
2000	100	100	100	100	100
2001	100	100	100	100	100
2002	100	100	100	100	100
2003	100	100	100	100	100
2004	100	100	100	100	100
2005	100	100	100	100	100
2006	100	100	100	100	100
2007	100	100	100	100	100
2008	100	100	100	100	100
2009	100	100	100	100	100
2010	100	100	100	100	100
2011	100	100	100	100	100
2012	100	100	100	100	100
2013	100	100	100	100	100
2014	100	100	100	100	100
2015	100	100	100	100	100
2016	100	100	100	100	100
2017	100	100	100	100	100
2018	100	100	100	100	100
2019	100	100	100	100	100
2020	100	100	100	100	100
2021	100	100	100	100	100
2022	100	100	100	100	100
2023	100	100	100	100	100
2024	100	100	100	100	100
2025	100	100	100	100	100
2026	100	100	100	100	100
2027	100	100	100	100	100
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18. **Exempt Class: Retirees.** *Johnson v. Board of Trustees, 2003 WL 1363369 (N.D. Cal. 2003).*

MANY Atari flight simulators and other games, such as *Military*, use vector graphics to give the illusion of moving through three-dimensional space. The program — 3D Animatics — demonstrates some of the techniques used to manipulate vector graphics.

Type in the basic listing and save it in the usual way. Unfortunately because of the large area of code used for storage and the use of Graphics 18, the program will only work on an 800XL or XL.

When you start it, you must first plot a shape on the screen by moving the cursor within the framed screen using a joystick. To prevent an out of range error when the shape is plotted the cursor will not move to the far right or left of the screen.

To plot a point simply press the fire button and after the first point has been plotted a line will be drawn back to the last one. Points can either be plotted as foreground or background. To change, press 1 for foreground or 2 for background before plotting the point.

After drawing a shape press Start to go to the plotting routine to set the number of plotting parameters. The first is the angle of rotation which is a value between 0.1 and 0.9. A value of 0.1 means that each shape plotted will rotate by a small amount and a value of 0.9 performs an almost complete rotation.

Then set the direction in which the object rotates (forward or backward) clockwise or into clockwise.

There are three types of axis rotation and all give the effect of the shape going into the distance and then coming closer again.

Rotation 1 spins the object on a flat plane and does not highlight the foreground/background distinction. Rotation 2 makes the shape rotate through a horizontal axis and rotation 3 through a vertical axis, while rotation 4 is a combination of rotations 2 and 3.

The computer calculates and draws the 40 individual shapes that make up the rotation sequence. If the maximum 40 points are used the result a few minutes and in each shape is drawn a random code number between 0 and 9.

To animate the shape another random code number transfers the stored shape data from the ram storage area to the screen ram area. The high speed of machine code gives the smooth animation effect.

To stop the animation press the spacebar and you can then either draw another shape or redraw the same shape with different parameters.

You can demonstrate how fore-

Manipulating vector graphics

STEPHEN WILLIAMSON shows how to animate shapes

ground and background points affect a shape by entering the program shown in Figure 1 — with all points as foreground — then animate it. Then return to the plotting routine of the program and plot the shape again but with the points marked F as foreground and point B as background.

To do this correctly make sure that you are in foreground mode (FOREGROUND is highlighted by inverse letters) to begin with and plot point F1. Move and plot F2 then F3 and back again to F4, (potentially F1) in order to complete the color triangle.

Press 2 to change to background and move to B5. Then change to foreground before plotting F6 the same position as F3). Return to background and plot B7 and finally change to foreground to move to F8.

You'll notice that the point in the centre of the triangle is a background point and lines F3, F4 and F5 are connected to it because all lines are connected to each other if it is often necessary to draw over a line more than once just as if you were drawing the same shape on a piece of paper without your pen leaving the surface of the paper.

When the pyramid with background point is animated it will appear to be in three dimensions and not as the flat surface of the shape plotted without the background point. A maximum of 40 points can be plotted at any given time.

Let's look at how the program works. By convention, in a two dimensional shape the horizontal position of a point is known as X, and the vertical position as Y. So if you use the command PLOT 40,90 a point will be plotted at a point 40 pixels across the screen and 90 pixels from the top of the screen.

In order to represent a third dimension — depth — we can use the letter Z. Without the benefit of 3D Holography we cannot actually plot 3D shapes using an Atari computer — but by clever use of perspective the mind can be fooled into thinking that a 3D object has appeared on the screen.

Figure 1 shows the three coordinate principle. Line X of the cube drawing represents the horizontal X axis and line Y is the vertical Y axis. Line Z is the depth or Z axis. Any point on line Z can be thought of as a measure of how far away the point is from the observer.

The program scales the Z axis so that a value of 0 puts the effect of an object on the surface of the screen. A negative Z value means that the object has left the screen and a near your eye while a positive one takes it behind the screen. So, theoretically an object can hit you on the head or disappear into the innards of your T8. Such is the power of a two dimensional world trying to simulate a three

Turn to Page 37 ▶



Figure 1: The pyramidal shape



Figure 2: The three dimensions and axes

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The (happy) husband (H) vector plotting is complete. And a study of the program will show some of the tricks you can use. The variable `PNTW(1)` is used to hold the X coordinate of each point. `PNTW(2)` the Y coordinate and `PNTW(3)` the Z coordinate. The variables `LENH(1)` N and `LENH(2)` Z keep track of which vector lines to which.

The columns in lines 1080 to 1093 include the square area for changing the coordinates of the points when each shape has been plotted. AOS 4 uses both the AOS 3 and AOS 2 routines (see 1 to 1000).

Lines 320 to 350 draw the shapes and store them in `rule`. Line 350 finds the `GCAT` variable which, using the `Z` coordinate, determines the scale of the shape. The smaller it is, the further into the distance it appears to recede.

Lines 140 to 160 show the possible call by the system. Again, that all patients are made relative to the center of the screen by adding 75. The program uses a G register to store of 140 a 160 received.

The program has been written, according to his view, in a style that reflects

Applied 2D animation sequences can be displayed using the two phase method described in previous publications of the author.

Figure 1. The model of the proposed research.

relations. Try altering the mission dependencies from 1000 to 9400; or change the file relationships; or plug 10000 in for LIBON.11 and see what happens.

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1117 DEBELL, 1998: 107-113

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†Epidemic of TB in prisons closed by releasing inmates. *Lancet* 1991; 337: 1079.

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Driven Skate Crazy

I MOON is complain about the game *Skate Crazy* in it you published in the April 1987 issue of *Atari User*. I typed it in my e-mail as it was printed, but when I ran it the title screen appeared followed by an error message for line 2140. I checked this line and it was just as you had printed it in the magazine.

I took this line out of the program and ran it again. This time the error message was for line 2170 as I took this line out as well. When I ran the program again the title screen appeared with no error message. I thought I had completed it but nothing else happened.

There is nothing wrong with my calculator so is there something wrong with your program? Also, how do you see the Car & Right table mentioned in the letter? — **Victoria Gray, Houston, Texas**

■ The letters that we print are taken directly from working copies of the programs, so we know that they are correct.

So why didn't this one work? Well, you don't really go into enough detail. Is your letter about what type of error occurred, but I'd hazard a guess that it was almost surely an error number 5 or number 6.

These relate to the READ statement which occurs on both of the lines you had trouble with, and you will probably find that the problem is with the DATA lines associated with the READ on line 2140.

If you take a look at the listing you will see that lines 1026 and 1030 read the immediate data from lines 1030 and 1032. Since these are both okay the problem must be with the data which follows on lines 1030 to 2120.

This should be easy via the READ command on 2140 so any typing error takes will only show up when line

SOFTWARE SOLUTIONS

Your programming problems solved by ANDRE WILLEY

2140 is reached. Thus, when you deleted 2140 the error that occurred with the next READ statement for line 2070.

Since there is a lot more data later in the program (it is unlikely that an error 5 (DATA exhausted) had occurred) so the error type you are encountering is more than likely as right — telling you that the program expected a numeric value, but found something else, such as a letter or punctuation mark.

Check through lines 1030 to 2127 to make sure that all of the numbers are correct, and that you haven't misplaced or missed out a digit, or typed a full stop instead of a comma. Any of these would cause the sort of error you describe.

You should never try to correct a program by simply removing an offending line. This is partly because the programmer has obviously put each line in for a specific purpose, but also because (as we have seen) the error is very often caused by a mistake on a completely different line.

The Car & Right table is one sure way to check that you haven't made any typing mistakes. Data is of no use to us if they're printed in the August 1988 issue of *Atari User*.

Joystick action

I OWN an Atari 2600 and a 1010 data recorder, and I find your magazine always packed and crammed with great reviews of games. I am interested in programming but have a problem with updating joystick move-ments.

Could you give me an example to show me how to move using the joystick and the buttons? — **P. Dayne, Buxton, Essex**

■ There are two commands you need

to know — STICK and STRG. The first tells you which direction the joystick is pointing, and the second tells you whether the button is pressed.

Each command is followed by a single number in brackets, normally a 0 for a 0 and 1 for a 1, and this specifies which system action you want to use. Thus STICK0 would return the position of the first joystick, and STRG(1) would tell you if the button on the second joystick has been pressed. STICK gives a result of 0 or 1 whenever the button is pressed and a 0 or 1 at any other time.

The numbers returned by STICK are as follows:



The following short program demonstrates how to move an object on the screen in a circular around the screen.

```
10 DIM DIR(8)
20 DIR(0)=0:DIR(1)=1:DIR(2)=1:DIR(3)=1:DIR(4)=1:DIR(5)=1:DIR(6)=1:DIR(7)=1
30 DIM X(100),Y(100)
40 X(0)=0:Y(0)=0
50 FOR I=0 TO 100
60 X(I)=X(I-1)+DIR(0)
70 Y(I)=Y(I-1)+DIR(1)
80 IF X(I)>100 THEN X(I)=0
90 IF Y(I)>100 THEN Y(I)=0
100 IF X(I)<0 THEN X(I)=100
110 IF Y(I)<0 THEN Y(I)=100
120 IF Y(I)=0 THEN Y(I)=100
130 IF X(I)=0 THEN X(I)=100
140 IF Y(I)=100 THEN Y(I)=0
150 IF X(I)=100 THEN X(I)=0
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980 IF Y(I)=100 THEN Y(I)=0
990 IF X(I)=100 THEN X(I)=0
1000 IF Y(I)=0 THEN Y(I)=100
```

Most joystick routines will be similar to this one, but you might like to use it in conjunction with our report series on Player Motion Graphics to get some great effects.

Are you having problems getting your programs to work? Write to your Software Solutions, Atari User Software House, 68 Chester Road, Garsington, Oxford OX4 2DQ. We will answer as early as we can within the pages of *Atari User* but unfortunately we cannot give personal replies.

Lurking Horro is just

that..

by Ruoloc

TALK about exhausted — there I was, reading my own business when these two *Nasgals* came into the local inn and started poking and shoving people around. Well, not one to lie down at getting into a good fight, I brought out my trusty sword and laid into them.

The actual fight lasted no more than a few minutes — well I do have rather a lot of anger with in these children — but the real reason for my business was because of all the free drinks that the barkeep gave me. He was so grateful for my assistance that we got abed all right.

In fact I have just got back to my cave in time for the proofing and this month's column, so without much more ado let us see what's new in the world of adventure.

The first bit of good news I have for you is that there is a new *Infocore* adventure about to be released called *The Lurking Horro* and it's full of plenty surprises and unexpected fun.

Any horror fans who haven't given a read to the chilling classics of *Stones King* and *H.P. Lovecraft* or shuddered at the frightening images in *The Shining* and *The Exorcist* cannot call them serious horror fans. Move you can experience what horror is really like with *Infocore's* chance for real life special to mislead us nightmare.

As the main character in the story you have enrolled at the *George Edwards Institute of Technology* and have found nothing else except the stories about the old campus buildings and storage rooms, some so creepy that they contain only nothing piles of unbelievable junk.

You have heard about the deepest underground tunnels, crawling into forgotten piles of concrete and have vowed never to set foot in any of them. You do, of course, one night with a blooded aging and the wind howling, when a strange figure gives you into the dark rather jagged of the landscape. Then an eerie sound grows closer. Mmm enough of this I'm starting to get edge myself.

So here it is say that the adventures have been written by *Dave Zerk*, *Northampton*, *Sussex* and *Southwest* taking and all the usual bits and

pieces and in the package. Make sure you read them *slow* for a full review in the future.

The second bit of good news this month is that there is another new *Infocore* release imminent and this one is called *Susannah*. Yes it is a sequel to *Planetfall*. After three years and countless requests, author *Steve Minorsky* has brought back that lovely robot *Floyd* in an adventure which puts the fate of the whole *Deluxe* in your hands as you my going into the *Stellar Pass*.

Your heroism in *Planetfall* earned you a promotion from *line* on *Scandinavian* Class to *Outstanding First Class* in the very boring paperwork task force.

Life is just very tedious and to cap it all you are assigned to travel to a nearby space station to pick up some forms. Imagine your surprise when you discover that your companion for the journey is the mischievous and playful *Floyd*.

When you both arrive at the out post, all is not well. The place is deserted save for an angry balloon creature and a brainy robot named *Pluto*. Something is very wrong, but what?

This game is a worthy sequel to *Planetfall* and *Steve's* humor so apparent in *Infocore's* and *Leather Goddesses* is well in evidence here. So watch out for another volume.

I hope you like the recap of *Minorsky's* *Planetfall*, on the next two pages (going around that plain old head above the bookers) but enough to help fellow adventurers and I look forward to our meeting next issue when all that is interesting in the world of adventuring will be served to you on a silver platter.

See you next
month





L&L from Watpall has bought Ultima IV and needs some good advice to beat The Baron and now to get followers to join him. Ultima and my good friend Lord British have given me a tough nut to crack: the playing area is vast, so don't expect me to give the whole game away - (I would take up too much space anyway).

Tested? I will reveal to you where each rune can be found! Honestly it is Moonglow. Compasses is in

Brits is in the tent, and Vello can be found at Tower. Justice is hidden at Yew. Security is in the big pit in Mirror Manor southwest of Trinsic. Spirituality is at the Black's castle and Humility is in the village of Pook. Write back and tell me how you get on.

Ruthen from Sheffield is having problems with Calrossi Adventure and wants to know how to get the Platinum Panned out of the Power room and where to find the pirate's treasure chest.

The trouble in the Power room is so small that only if you drop everything can you squeeze in. Once inside just say McDIVER and you will appear at the 12 room room. Then say FLOWER again and you return and so forth.

The pirate statue in the two room room and the chest is hidden deep inside it. You can actually get to it in four moves from a warp room, but I am not going to spell the fan for you.

Calvin from Nottingham has a

problem involving Graeme's updates to Return To Eden. He doesn't know how to type the answers. Well, just type the word SCALUTIONS. Calvin. And don't mess about with 'The answers are... just type in the answer.

Ron White is having trouble with Relives. He can't see the toilet to visit the midwives. Also he can't get THROCK to work in SPELLBREAGER.

The filter is used by inserting it in the handle of you examine a yourself filter slot. THROCK is used by placing the head in front of the Oges and reciting the spell which will regenerate his constitution long enough for you to get past.

Paul Hasty cannot get out of the City in Lapis Philosophorum, even though he has the amulet after returning the cat to the old lady.

The answer is to double the amulet in front of the guards eyes. They will be hypnotised and forget their orders not to let anyone out.

Drive into danger

HAZARD is a world where the only form of employment is driving an arcade-plated car, full up to the brim with weaponry, along hostile roadways. Fighting any other driver on the road in order to deliver cargo from one city to another.

Then, for sport and relaxation, do battle in a city's arena, pitting your car, driving skills and life against others for a prize of time and wealth.

This is the world of *Autoball*, a role-playing adventure game in the *Darkspore* and *Dragon* vein but with a futuristic bent to it.

You begin with \$100 and just your legs for transport - which in *Autoball* is decidedly unhelpful - so you need to get cash quickly to buy your first car and then begin your driving career.

New recruits start in the arena on *Autoball* Night, where you are given a car to use in the track against five other haphazard. If you win you get \$1000 and can then buying new equipment to add to your car.

As in all role playing games, your character develops as you progress in the game, and as you reach each new city the chances of getting more exciting jobs increase.

In each city there are a number of locations to visit, where you learn for repairs, get repairs or buy new weapons. You can even sell off weapons from your on the road dealing and best of all is to become an FBI marshal and clear all the criminals from the highways.

The game is based on Steve Jackson's board game *Car Wars* and *Dragon* has used the *Ultima* team to convert it into a computer project. The packaging impressed me. You get a detailed manual, a full colour road map and even a mini pack of real tape.

The only bit that in the game was its black and white display, which does not do much for the old Atari colour capabilities.

Still if you like playing role playing games this is the one for you.











Program: *Autoball*
Price: £19.95
Supplier: Omega Systems Ltd, 1000
Avenue, 2, Market Place,
Chesham, Bucks HP8 4DA
Tel: 0494 54339

alternate

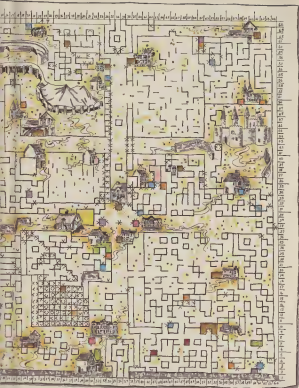
REALITY

The City

-  SH Stop
-  T Tavern
-  G Guild
-  S Smithy
-  H - Healer
-  I Inn
-  B - Bank
-  D Dungeon entrance
-  C Closed by order of the palace
such as House of Ill repute
-  Triage One entrance no exit
-  W Wilderness entrance
-  Division of access through wall
or floor (sometimes movable)
-  Two directional access
-  Entrance (in this instance is a
shop)

Access to dungeons, palace, shrine, or wilderness from the city is only possible when the relevant part of the series is available





DUCKDASH

BY JOHN GYMER

HURRICANE Harriet is heading towards your farm. Heavy showers have already turned your yard into a pool of mud and the storm is yet to come. All the animals have been put in barns and old sheds — except for those datted ducks, who refuse to be startled up. And you haven't got long before the hurricane hits. So you, farmer Dick, must hurry around the yard and collect all the ducks as quickly as you can.

Now this sounds very easy but there are dangers in the yard. Two deadly farmers eating spiders have decided to shelter from the storm there, so as you race around collecting the ducks you must avoid them — at all.

The main problem with your pond is that as you run, your feet dig up the ground and if you ever come in contact with one of the holes you lose a life. You also lose a life if a spider eats you or if you run out of time when the storm hits.

Also in the yard you'll find sticky pools of mud which trap you — briefly — if you stand on them. They can also trap the spiders and this can add more gamefulness to play.

When you finally escape from the pool of mud which behaves as an arena as a white grass it will change into either a hole or a safe square you can walk on.

Two players can play the game with one player as the farmer plugged into port 1 and the other as the spider in port 2. The option can be selected from the main menu and adds a lot of fun to the program.

In play mode you can abort the game by pressing the start key, and for extra bonus points you can collect the spider — shown as yellow dots — that are scattered around the yard.

Once all the ducks are saved have been collected you are awarded bonus points for time remaining and you move on to the next screen which will have more ducks, more farms, more sticky pools and faster spiders. If at any time you lose a life you continue on the same screen until you

complete it or until all your lives are lost. The game then ends and you are returned to the main menu where you can select one of six levels.

One is easy and six is very hard, with the bonus points at the end of each screen calculated according to skill level selected.

VARIABLES

1000	High score
50	Score
50	Mail
X, Y1, Y2	Position of farmer
X, Y1, Y2	Position of spider
LEV	Screen level
LIV	Lives
TIME	Time left
SPID	Address of character
...	...

PROGRAM BREAKDOWN

50-800	Main loop
80-100	Farmer movement
200-300	Spider movement
400-500	Sound effects
700-800	Main screen
900-1000	Initialisation
1100-1200	Resolving characters
1300-1500	Music data

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We already know how talented and creative Atari users are and we look forward to receiving your programs and articles for publication in future issues of Atari User Magazine, before you send your masterpiece off to us let them see one or two points that you ought to bear in mind to make it as fun for us as it is for you. We call these the 18 commandments.

The 18 commandments

A guide to presenting your masterpiece for publication

WHILE not wanting to put programmers' creativity into a straitjacket, we've found that life can be made easier for the magazine, our readers and the programmers themselves if we stick to certain standards.

It has also occurred to us that it is a no good our not knowing what we want. We have to tell you our postal contributors. So here are our 18 commandments.

Don't be too daunted by the list - it's mostly just common sense and good programming practice.

● Send us your programs on tape or disc. There is no point in just sending a listing and asking if we've videoed - you can't expect us to evaluate a program from that. We may be good, but we're not that good! A cassette or disc with the program on it is a must.

We rarely use two part programs in the magazine. Games in two files may look professional, but there is the loss of sleep as far as the magazine is concerned. Too much can go wrong when people type them in.

● Avoid using characters in variable names that lead to confusion such as *u*, *l* and *7*. & and @. Meaningful variable names help as well - **ALIEN** is far more understandable than **AE**.

● Tell us what the program is supposed to do and refer to it by name. You'd be amazed at the number of programs we get where the author forgets to tell us what it is all about.

In any subsequent correspondence reference to any program can cause problems by its vagueness. They would have the program on record somewhere, but it would be a lot easier all round if the author were less inexact and admitted he was the one who forgot. Make friends.

● Label everything with the program's title and your own name and address. Keep your own copy too. So far the only existing copy of one particular

classic game has disappeared in the post - but there is no reason to run the risk of yours being the first.

If it is a game, let us know how to cheat, so we can test out the higher levels. We're getting on a bit here and our testers aren't as good as they used to be. (They used to be us.)

And an adventure-type game or software should come with a map of the scenes and any other relevant info sheet. Much as we'd like to, we just don't have time to guess the name of Rambo's little brother, so make how much we admire your ingenuity (Mayday) to work in our offices!

● Put more than one copy of the program on your tape or disc. And if you want your masterpiece back let us have a stamped addressed envelope with the name of the program on it.

You won't appreciate this unless you run a computer magazine. But if you use tape please send each program on a separate cassette. If not we just sort the tape. The rule is, one program per cassette - though related several times an it.

● Let us have a printed listing if possible. Screen dumps or off screen photos are much appreciated, though not vital. Diagrams are always of use. Often a point that is difficult to put into words becomes clear as crystal when you sketch it out.

● Give a description of the program when it does what you wrote it and confirm the way it works and its own style and subroutines.

If it is a game let us have a plot. You'll get no idea of the sort of thing by reading the instructions to one or two of our games.

Maybe you could also give a few ideas for its improvement or expansion. Even if you can't get your upgrades to work there's a good chance that one of our talented

readers will.

Every submission must be typed clearly with a IBM and should be lettered to be by it. Again make the title meaningful. Also, when you **SEND** use a IBM to indicate which subline you're using. For example:

100 12345 1000 000 0000 000

1000 100 000 000 000 000

100 12345

At last, this may seem to be a lot to reach for, but it is not just for the readers benefit. As your program grows you'll find that each IBM more than repays the effort by allowing you to keep track of your work.

When you write out your list of submissions - which is vital - try to do it in the form:

100 123456 0000 0000 0000 0000
000 0000 0000 0000 0000 0000

where the line numbers refer to the lines in which the subroutines are defined. Again this helps by making things clearer to our readers - and you.

We don't expect your program always to be the clearest of English literature, but it does help if they make sense and are easy to follow. By reading them out loud - you'd be amazed how much such a simple technique can improve your writing.

Also, if you get stuck trying to put something into words use this trick. Tell someone what it is you're trying to put into words - then write it down. Before you reject that first try it, more than one professional writer owes his credit to it.

● Make sure that the program is really yours. Try it out on your friends for

their untidiness (another thing it may fail). The real test is to ask them to type it in. And — when you find yourself frowning through clenched teeth.

How could anyone be that stupid? The answer is: regularly! — but cut the code in your own eye and enter your program to take account of the feedback.

It's not easy to do, as the all too frequent bloodstains among the self-crit and self-help testify, but it's worth it.

Instructions can make or break a game. Make sure that you really do intend. They should be complete and it helps if that spelling and grammar are correct. Apart from saving confusion, such errors also make programs look unprofessional.

As well as misspellings, bad grammar, split words and general untidiness are all to be avoided.

Following even the simplest program can cause problems for the most experienced programmer — don't add to them unnecessarily. One major cause of having to return programs for modifications is colour/mode/colour incompatibility.

You can develop a beautiful program making use of all the splendid colour the Atari has to offer, only to find that the colour designers in an important big or a nationwide TV — and vice versa.

If possible, try your program on both types of television. Your groups are available here, as they are to all aspects of program development.

● Please do put lots of nice elegant story (RMS) in your programs. A couple of RMS statements with nothing after them at the beginning of the program gives us room to put in our messages without mauling up all the line numbers you have referred to in your program description.

● Avoid having lines with just a RST and nothing else. It may make the program look neater, but we will be welcome letters asking what the missing words are. Remember people will be spending hours typing your programs into their machines. Make their life easier if you can.

● Double space all your written matter. This means leaving a blank line between each line of text which is vital from our point of view — to be able to follow our style. We have our own ways of doing things. For example we press the RETURN key, not the RETURN key as you might expect.

Just look how we do it in the magazine. Our programs are Program 1, Program 2 and so on, our diagrams Figure 1, Figure 2.

● If you must use long multiple lines don't go over 114 characters by using abbreviations for some words, as

people then complain the lines are too long.

● Don't use abbreviations in text. Text is exceptionally easy to miss — for the sake of typing two extra characters you can save our readers hours of frustration.

● Please when you send us your work include a separate page telling us that it is your own work. We have been offered elsewhere and that we have your permission to print it. If you don't say I have to return it.

● It's always best if a program can have an alternative key or joystick option.

● One of the major causes of programs crashing is because the user inputs something the programmer didn't expect. All right, the user shouldn't type in stuff when you tell him not to, but believe us, they will out of sheer perversity — particularly if the program is educational. There is something about CIL programs that brings out the devil in us all.

So try out all the unlikely options — if you don't, some poor user will.

Actually, it takes a lot of skill to test print a program so it is a delicately known in the trade. Often you're so involved in getting the program to work as it is supposed to that you just can't make the mental leap needed to see it as the possibly misdeveloped reader does — so try it out on your friends.

● Another reason for a reject is

when he sees something like

PRINT

Exactly how many blanks is he supposed to enter? Use

PRINT

FOR = 1000

for a space.

● Tell us who you are. We like to know your Christian name and it is also interesting to know your age and profession. After all we might need your program, but if we know you were a fellow letter we'd have been able to send you Odisseus's "Writing for letters" on the 1024s for review.

Also a telephone number — both home and work — with the correct STD code is really useful and can save a lot of time.

Here are the 10 rules. If you follow these when you submit something to us you'll stand a much better chance of having it published. More importantly, you'll become a far more professional programmer.

And the letter will become the main attraction. It is

Contributors should be sent to: Features Editor, Alan Utan, Europe House, 88 Chester Road, Havertree, Stockport SK16 5NY.



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* *Programming articles, hints and tips*

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Your Local Software House

Also available from
Your Local Software House

Shivers down the spine

Program: Phantom
Price: £7.99 (suggested £8.99)
Media:
Developer: Tynesoft
Publisher: Datasoft
Turn of Mind: 10/10
Hot: 10/10 (see p.11)

STRANGE things are happening – unexplainable and creepy occurrences. So when I picked up my copy of Tynesoft's latest game *Phantom*, shivers ran down my spine.

You are a professor of extra physics who happens to be interested in psychic phenomena and built a portable nuclear accelerator, presumably in his garage. Now this reactor makes a large hole in spooky phenomena.

So with reactor in hand you are well prepared for the horrors that face you as you go.

On loading I was greeted by the control panel featuring score, reactor level, heart rate (on beats per minute) and an electronic ideograph (EEG) which reads on the bottom right of the screen.

Now it appears that you only have one life and the BPM indicator indicates every time a ghost comes into contact with you – when this reaches 100 your life clock will give out.

You are in Ye Old Inn, and don that with a plan a game that looks, feels like a maze

Scrambling around are ghosts who appear as they see you begin to convulse.

Easy. I fear you are out with the nuclear accelerator and push the spoils begin to search in stacks of ectoplasm. This is a pretty neat weapon as it helps you destroy spoils in the dark.

But there's one problem – you only have a limited supply of ectoplasm in your reactor and if you empty it you are in deep trouble.

Now there are switches about the inn but its doors are in the better part of view so you can design the spoils in detail.

You have to battle your way around four certain levels of the inn, collecting keys and other items as you go.

You eventually battle with a large and very nasty ghost. At this point I realised that my heart rate did not go down in this maze from one level to the next. Indeed it only settled when I completed the inn and moved on to the Dungeon where a completely different set of horrors awaited to have me for breakfast.

With 16 different rooms and the reactor and life to indicate there is plenty to keep you on your toes – especially as the difficulty and quality of items increase.

The graphics used throughout are first rate coupled with a wonderful



background tale. Character animation is superb both for spoils and your player character.

My only quibble is that the spoils can get you without you being able to shoot them. This is not a major problem because if you are good enough you simply sidestep them.

Instead of rampaging around the screen hacking and slashing your enemy, with *Phantom* you must use tactics to negotiate each screen. This involves eagle eye and a very addictive quality.

to the game.

Phantom is original and well worth buying for the sheer pleasure of playing it. So when it comes to the final conflict and you have rumbled in your attic or crypts in the cellar then 'Who yer gonna suit?' – Tynesoft.

Neil Parsons

Sound	10
Graphics	10
Playability	10
Value for money	10
Overall	10



Weary wagging

Program: *Phoenix*
Price: \$19.95
Supplier: Masterpiece 3-D
Post Street: Jackson, MS 39201
Age: 12+
Tel: 601-377-6665

ALTHOUGH Phoenix doesn't take me off to a game quarter, I feel like I'm in a more relaxed, more casual software. My guess is that it is more likely to be played by someone from a more relaxed generation.

You are armed with a Scorpion which is actually two thick bars and running vertically down the screen the other horizontally.

Each bar can be moved separately against a plain background. The horizontal one goes left and right and the horizontal bar up and down. The movement is controlled by an appropriate key on the joystick.

Over the screen, stage left, right and all ways. These

part with Phoenix are not really striking. Being either simple diamonds or other sharp angled shapes.

Your task is to destroy the figure before it progresses to the next level.

The way to determine the initial path is moving one of the bars across its path — the stars indicate an impact. If stars are heading from the right, sweep the vertical bar from the left. Pink arrows on the bar point the direction the bar is currently facing.

You also have some small bombs at your disposal — triggered by pressing the fire button. They will destroy all of the stars in the immediate vicinity.

And that's it really. There are no waves of stars to get through and while it gets harder and more frantic, you are still simply wagging one of two bars back and forth. I grant that destroying



hundreds of your Scorpion is hard- to make progress but the game failed to catch my imagination. It's all too much of a mystery.

Phoenix was written by Tony Takayuki, well-known arcade game fan. Despite his wide experience of arcade play, he is afraid he hasn't produced a satisfying game.

Phoenix doesn't come anywhere near guaranteeing the sort of excitement that many other games for the Atari have managed to deliver.

Better, though the level complexity and much more game play variety, might have increased my interest. As it is, although the game is cheap, you'd be advised to have a look at some others in the Masterpiece 3-D range. That is not one of their best offerings.

Rob Chappell

Sound	5
Graphics	5
Playability	4
Value for money	4
Overall	4

There you go

Program: *Jumping Frog* (P) (M) (A) (S)
Supplier: Real Soft Software
21 Pennel Street, Alton
Cheshire GU14 5JG
Tel: 081 438 1555

THE main character in *Jumping Frog* is some sort of domineered Aesop jumping around on a pogo stick. It looks hard to me but just thinking about it

Anyway, you can go to find the hidden Lost Golden Pogo stick, guarded on by the well-known Danny Ray. With it, I think I should have an open mind on several matters. I was glad to be able to turn this particular concept off.

You are given five lives to laugh with and there are obstacles to win each level. Each jumper has to be demolished inside a time limit and there are 50

levels to play through.

Mostly, back left to right, your progress may be checked by a number of obstacles and hazards. These include lava flows, raging fire, laser beams and even bomb dropping helicopters, meteors and one or two others.

There can be dodged by careful timing of your movement or avoided by hopping on to and across platforms conveniently drawn about the place. The platforms can be on the rock steady or disintegrate temporarily.

You hop gently along moving left or right. Pressing the fire button increases the height and length of the jump. The jumping movement is good and hearty which helps to Aesop's particularly funny jumps.

Once it's over your first big 30 seconds into the game, you don't have to go



back to the beginning and start again.

On starting you can choose to begin at either 10, 20, 30 or 40 down along on how far you reached. Even as an obstacle begins, you can start on any screen between 1 and 9.

The graphics are bright and cheerful though blocks and other obstacles that the background scenery could have come from Labyrinth and as for the lava flows — well I've seen those before

and I've seen them before.

There's nothing like under the sun to get a bit of a laugh — and *Jumping Frog* Real Soft Software certainly does nothing to let us do it. On the other hand, *Jumping Frog* is well put together and is a reasonably challenging

Mark Reynolds

Sound	4
Graphics	5
Playability	5
Value for money	5
Overall	5

Cutting it fine

Program: *Hoover Boyer*
Price: \$7.99
Supplier: Microboard 210
**Post Street, London SE24
 4JH
 Tel: 01 377 4890**

A GAME about lawn mowing by Jeff Minter? What he of the magnificent all-action engineering blast is in and out of the play, thank! No, it isn't by the same Minter.

But it is *Hoover Boyer* is not a new game — in fact it came out on the Commodore 64 way back in 83.

The game has now borrowed a neighborhood's mower to cut a series of lawns. You've barely started cutting your first swath when the neighbour decides he wants his mower back. Then begins the

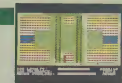
chase: you stalk him around the lawn, flicker back and forth with the neighbour to that point.

If you go too far with the mower it overheats and starts out, causing a delay in your mowing exploits, until it has cooled.

Should you send your mower ploughing across one of the many flowerbeds, an angry gardener joins in the pursuit.

One way of finding off-purposes is to let *Boyer* your faithful dog on to them.

The gardener and *Boyer* snarls: you will never mow a flower bed unless you have ploughed a path through it. Not as theough, *Boyer*, who will trample anything in his desire to mow the mower. It pays to play the warden to keep



the edge on them.

You have three lives, and 18 gardens to conquer. Therefore you get the best again as a faster speed. You can begin on any of the first eight lawns you like and have a one or two player game.

The pace of the action is from slowly overworked which, although a new blade, a lot more is clearly done.

Most is junky hardware

of. In an English Country Garden 1 and sound effects are excellent. *Hoover Boyer* offers many an enjoyable, fast action bout of daffy fun. Should be top of your shopping list.

Bob Chappell

Sound	—	4
Graphics	—	4
Playability	—	4
Value for money	—	10
Overall	—	4

Breaking out

Program: *Advanced*
Price: £8.95 (or £12.95 plus
 Supplier's loss to 8 Central
 Street, Manchester M2
 6JH
 Tel: 061-433-9333

WHO would have thought that the game of '83 would be a relative of the super-duper program *Advanced*?

Well, maybe. It has a winner with its latest release *Advanced* 4 looks like *Advanced* but has many hidden surprises.

Advanced has already contained the original arcade version of *Advanced* on to other computers including the ST with considerable success. But I'm going to say that the *Advanced* 4 version is well below average.

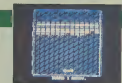
The game has a very simple form — you control a ball in the form of a short tube. This must be used to keep a bouncing ball from reaching the base of the screen. The ball must then be munched along a

mass of coloured bricks, breaking down the wall until all are destroyed, and then you go on to the next level. I know, I sound exactly the same as *Advanced* 1 but there are two additions to make it more fun.

Each level has a different pattern of bricks and various bricks need more than one hit to remove. Some have collected one or more capsules hidden behind them and as soon as you destroy one, the capsule appears and falls down for you to catch.

Each capsule has a different colour, identifying label and a different effect. Catching a new capsule will negate the operation of any previously caught capsule.

The ball capsule in most cases is the L, for Laser. Your ball turns into a double ball which can blast the bricks. The instructions do say that a D capsule exists — breaking the ball in to three — but I never got one.



Released at intervals through some of the top of the screen are stars that cause great confusion between you and the ball. If the ball explodes and hits an alien the ball gun is moved in any direction.

There are 32 stages to work through before the climax confrontation with the Dimension Changer, whoever or whatever that is.

At least can be played by one or two players and the ball is controlled by a few paddle joysticks or the key board.

I have seen and played the ST version and this makes me feel even more

gratifying of the 3.5 in version.

The game looks on graphics the colour stuff making the game at times impossible to see. It is to be made and it seems to give capsules out by the slow making each level too easy to complete.

I feel that a lot more could have been done especially with such an easy program using lots of hardware.

Richard Vanner

Sound	—	4
Graphics	—	4
Playability	—	4
Value for money	—	4
Overall	—	4

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LOTS of pictures have dropped into our mailbox since last month's Palette, including some of the demonstration pictures from Red Hat's Technicolor Graphics software illustrated here.

If you would like to see your masterpieces in print, send them to Palette, Atari User, Europe House, 88 Chrysler Road, Hazel Grove, Stockport SK7 5BT.



Atari User Art



Red Hat Art



Red Hat Art



Red Hat Art



Red Hat Art

SPECIAL FX



In this new series we'll delve deep into the unknown areas of your Atari computer. FX will give you some insight into what can be achieved by using a little imagination and harnessing the many hardware functions available.

We start off this month with a machine code routine that loads player masks (graphics shown the screen). This shows how it is possible to change the player masks (graphics PMGs) & positions as the electron beam moves down the screen. Both a Basic version and the machine code source program are given.

Type in the Basic listing, save it and RUN it. A breakdown of how it works is given in Table 1. After a short pause the screen will display a diagonal line and start moving across the screen.

Note that there are only four PMGs on the screen. How is this done? Well let's look at the assembly listing.

Most of the work is done between lines 462 to 565. The X position of each sprite are taken from location 33 which is increased every 60/100 lines (every time a TV frame is displayed). Then the positions are altered by the angle value and the new PMG coordinates are set after reading for the horizontal sync (AVSYNC DMAU).

The procedure of changing the X position is continued until the value of the vertical counter (VCOUNT 504055) reaches 100.

This indicates that the electron beam is near the base of the screen and nearly ready to re-display a new frame. Location 33 is increased by the Operating System during the blank period, which gives a new position for the PMGs to start from.

Don't worry if you don't understand

RICHARD VANNER shows how to produce amazing displays with your micro

how the machine code works because the Basic program has been written so that you can use the code in your own programs.

You could try altering the two angle variables ANGLE1 and ANGLE2 or change the width of the player masks and the data stored within them.

Unfortunately when you change graphics mode the PMG area becomes corrupted, so make sure you are in the correct mode when you

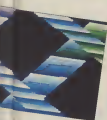
use the routines in your own programs.

Another limitation in the program is the fact that it speeds up its rate changing positions until checking for the Start key. To overcome this problem you must use a feature called the Display List Interrupt (DLI).

■ Next month we'll look at how to set up a DLI and give you listings that will split sprites and polygons which will run independent of your Basic program.

88-100	Sets up 1% of speed for PMGs and sets up A5 which holds the machine code.
110-180	Tells the ANTIC chip-enabled PMGs and sets the player address pointers.
180-240	Clears all player graphics memory.
250-300	Fills each player with some form of data. You can change this to your own routine marks.
320-340	Copies machine code data into A5.
350	Sets ANGLE1 and ANGLE2 to 5 and 76 respectively. Try changing these to various values. Low values for lines and high values for star-type effects.
370-430	Sets player widths. Values poked here can be 0 or 2 normal, 1 double or 3 for quadruple size.
420-440	Prints a message on to the screen.
450	Calls the machine code that is stored in A5 with the two parameters ANGLE1 and ANGLE2.
460	Ends the program.
2300-2400	Holds the data for the machine code.

Table 1 Breakdown of the Basic program

[illegible][illegible]

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OVER the past few months we've been looking at facilities provided by the Central Input/Output System—or CIO. You should now be familiar with the way that the operating system uses CIO to pass data to and from the various peripherals, and how you can use those same CIO facilities from within your own programs.

One of its most powerful and useful facilities is to supply a common protocol for data transfer. This allows a program to send or receive bytes of data without knowing anything about the hardware device it is accessing.

This makes it very easy to add new drives to the existing set, and the OS allows plenty of space in the Handler Address Table for just such a purpose.

The most complex driver that you are likely to come across in this disc operating system for Dos is not a better known, and that's the next couple of months I'll be showing you in more detail how it works.

There are many different types of Dos available, but the most common is the well known Atari Dos 2.0. This has been expanded recently to give us Dos 2.5, but the main principles of operation are exactly the same.

Various other manufacturers have produced their own Dos software but most of them use the same basic disc format. Many also add their own special facilities, but for the moment we'll concentrate on the standard Dos 2.0's format.

The first thing to notice is that a disc drive differs from most other peripherals in that it is a random access device—it can read and write data at various different positions on the disc under software control.

While a cassette must be set for record off playback by the user, a disc is perfectly capable of being written to or read from whenever the computer requires. This opens up the possibility of transferring data between files on a single disc at any stage—the data can be read with one file—both of which are impossible when using tape.

Any Dos must therefore provide a number of operations. It must allow many different files to be stored and accessed on each disc and these must be capable of being read or updated and then deleted again when they are finished. There should also be a set of housekeeping routines for such tasks as copying files, altering the names of files, making new or backup discs and so on.

The disc drive is actually only cap-

A close look at Atari Dos

Part 6 of Andre Willey's series on the Atari's input/output facilities

able of disc very simple operations. The first is to format a blank disc. This effectively partitions the new disc into 320 separate blocks of data known as sectors (see Figure 1).

Each of these is 128 bytes long so a full disc can store 41,120 bytes (80K). The 1050 drive is also capable of formatting in a special enhanced density mode which contains 1940 sectors instead of 320 thus giving a total capacity of 247,360 bytes (120K).

The next three operations that the drive can perform are Write Sector, Write Sector with Parity and Read Sector. These allow you to store or retrieve new data into any sector. Finally the drive can also let the computer know its current Status and provide information about the last

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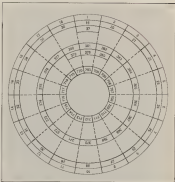


Figure 1 Sectors on a single density 5.25 disc

Sectors	Contents
1-3	Boot information
4-368	Free for files
369	VTDC
369-388	Directory information
389-1023	Free for files
1024-1048	Not available from Disc

Figure 11 Disc sector map for enhanced density Disc 2.0 discs

enhanced density. The first three sectors are always used for the boot information. These may not be used for file storage, even if you don't actually have a DOS 5.0 file on that particular disc.

There are three other types of sector on the disc — directory sectors, file data sectors and the Volume Table of Contents (VTOC).

The directory information is contained in eight sectors near the middle of the disc (sectors 381 to 388). It is here that all of the file names are stored, plus any other information about the files such as length, starting sector, status and so on.

Each entry is 16 bytes long, so every sector can contain details of up to eight files — giving a maximum of 64 files per disc.

Just prior to the directory sectors across the VTOC sector, numbered 369. This is probably the most important sector on the disc because it holds the table of free spaces, which is referred to each time you want to write any information to the disc.

As each sector is filled up, Disc looks at the VTOC to find the next available unused sector. When this sector has been allocated to a file it is removed from the VTOC free list and marked as being unavailable. Only when you delete a file from the disc are those sectors marked as again being free.

The rest of the sectors on the disc are available for storing the files themselves, with the exception of sector 720 on a single density disc and sectors 1024 to 1040 on the case of enhanced density discs.

When Disc 2.0 was first developed, the software authors wrote their first new system to use all 720 disc sectors, maintaining them from 0 to 719. The

hardware designers of the old 810 disc drive, however, programmed the unit to respond to a sector numbering system using numbers from 1 to 728 — most unusual in computer terms. Hence Disc 2.0 couldn't use sector 720 and the hardware couldn't use sector 728.

On a 1048 sector enhanced density disc, sector 720 is used just like any other, but in this case the last few sectors can't be accessed because of a limitation of the 16 bit file sector numbering system used by Disc 2.0 which was never designed to go beyond 1024 — this means you lose 17 sectors at the end of each disc.

Why Atari designed the 1048 to use this unusual system of 1040 128-byte sectors, while the established norm for extra storage capacity was by then to use just 120 256-byte sectors, no one is quite sure — but the spirit of it is, that you lose about 2% of space from every enhanced density disc.

Now time we'll continue looking into the disc system and see how it stores and keeps track of all of your files and data. See you then.

The truth about TELEX

How much does it cost to go on Telex?

You could go the conventional way and buy a dedicated Telex machine. The cheapest will cost you £1,000 (plus VAT), the decent £2,000 (plus VAT). You will also need a dedicated telephone line, costing £1,000 to install (plus £400 a year rental). That's a £3,000 outlay over the first year of a minimum of £2,000 (by which time you'll be doing well, and your needs to double at a rate of interest). And all this for what is only a very small part of the

How do I turn my Atari into a Telex machine?

If you need a modem and appropriate communications software for the requirements in the usual, a telephone, and a subscription to a dedicated communications network, you can also read the news as it happens, go down about a year. But with Modem you can also read the news as it happens, go down about a year. But with Modem you can also read the news as it happens, go down about a year. But with Modem you can also read the news as it happens, go down about a year.

But why use Telex?

Because it's a dedicated system of instant communications. It's not just a modem. Today there are 150,000 Telex machines in use in Britain — and more than 1.2 million worldwide. It's used by chemists, sports, up business, governments, etc. — just as much as using the phone but the more efficient. Because you have a fixed rate of entry, convenient for your needs. But there's a big bonus you get when you use Modem for Telex that no conventional way could offer. If by Modem, you don't HAVE to be in your office to send or receive Telex messages. You can just sit easily with your computer at home. So there's no doubt to say that the fact of using Telex is a very real advantage. And the fact of using Telex is a very real advantage. And the fact of using Telex is a very real advantage.

Program to suit the 1029 printer

I AM considering buying the Office II but would like a few points clarified. Would my Atari 1029 printer work with this particular program as most of the other utilities I own totally ignore this printer?

Also will the command centre program operate using split baud rates and if it will not can you please explain what baud rates are available to use? — A. P. Sharp, Tassaloe

■ Mail Office II supports the Atari 1029 printer throughout the entire package as well as allowing the use of all Eoson compatible printers.

The package allows you to enter graphic images of all forms of graphs on your Atari 1029 printer as well as working perfectly with the other modules of Mail Office II.

In regard to your other query, the communications package does not allow split baud rates but does offer 300, 600, and 1200 baud, which facilitates most of the modems on the market for Atari computers.

Replacing keys

WITH reference to a letter in the July 1987 issue of Atari (Last 22 covering) the missing of the Power key on a 1010 data terminal and replacing

a broken key with it. I recently did the same thing to my 1010 tape recorder and I replaced the broken key with the Power key.

I then found that Sierra Step actually self updates some keys for the keyboard. I tried off for two days and received the news very promptly for a price of £1.12 which included VAT, postage and packing. Sierra Step can be contacted on 01 208 1171 — Kevin Kingsnorth, Seabury

Buying a disc drive

I OWN an Atari 800X2 and tape recorder and am now considering buying a disc drive. I am unsure about what I get when I buy one which one is the best to buy and how to use it. What sort of further comments will I get and do I need to find the one which I use my drive? — M. Gilling, Liverpool

■ When you buy an Atari 1020 disc drive you will get a power pack, serial IO card and disk. One set of these discs you will find Disk 3 which is not the best of the

one first available but is probably adequate for your needs.

When working from discs you must load your computer with Disk files or you will not be able to save any programs or data that you have written them.

You do not always have to load Disk. When you load most games you simply use the game disc.

You need a computer and a set of commands on your screen when you load Disk allowing you to format discs, copy Disk discs and generally add and manipulate files from one disc to another.

As to which is the best Disk all have very similar command options but you will find that Disk 3 is the most friendly and easy to use.

Software problems

MY friend has recently bought a new Atari 1040STX computer and it comes with a built-in mouse. She has a converter that looks the same as the converter on my Atari 800X1. Does this mean that I can use the

mouse on my 8 bit Atari? — D. Redmond, Hemel Hempstead, Herts

■ The connection is the same on both mouse and joystick and you will find that the mouse produces a value in location \$4018 (20000 hex) when you move it. The problem is that no software is yet available which recognises the values output by the mouse.

Music on call

THIS must seem a very simple question but is it possible to play recorded music through the Atari 1010 tape recorder and also is it possible to run the recorder on and off via disc without using the CD401 or CD401A cameras?

The time to read when I tried to write a program to play some Christmas records and found that I could get the bang of the sound channels so I gave up on diagrams.

Then I wondered if it was possible to play and control music through the recorder and to solve my problem — S. Hudson, London

■ Yes it is possible to play music through your 1010 tape recorder but the sound will come through the TV speaker and they sound a little distorted depending on the age and quality of the speaker inside your TV.

The way that this is accomplished will allow you several years as well as it is possible to control the recorder from Basic but it is hardly ever documented in manuals. To turn it on simply type: POKE \$4018,2 then press Return.

If you get a music tape or

I OWN an Atari 800X1, disc drive and printer and wish to expand my system to include a modem. I am wondering if I could Micro Link would I be able to have it changed directly in the context of my phone or via phone left.

My other problem is that my system is in a converted attic and the phone is on the ground floor. Would the modem and the phone have

to be able to talk? — M. Broadbent, West Yorkshire

■ The only change on your phone will be the cost of the telephone calls to the MicroLink computer. MicroLink charges are billed to you separately and payment may be direct debit from your bank account.

To work out how much you would owe your parents for the use of the phone the MicroLink bill specifies the

connect time to the system at both peak time and off peak time. You will therefore be able to calculate the total phone call charges. Because your system is in the attic, it will be necessary for you to get an extension from the telephone socket downstairs to a socket in the attic. It is possible to buy such extensions from radio shack or a shop.

Connecting up to MicroLink

press Play on the recorder and turn the volume on your TV up you will hear the music. If you want to turn it off type POKE 16218:00 then press Release. By including this in your programs you can have something music without the effort of programming it.

Software checkmate

On a recent visit to the June issue of Atari User I noticed the GOS Software claim that their chess program is the Best 128 chess program for the 8 bit Atari. I would like to point out that Chessmaster 2000 from Software Country has been around much longer so I feel that the claim is incorrect. — Len Felt, Sunderland

Atari on tape

COULD you please tell me how the Atari music notes information to the tape recorder. The point is at present there is no alternative reference to the other existing tape playback device and I would like to

ATARI USER

Mailbag

WE welcome letters from readers — about your experiences using the Atari music about tips you would like to pass on to other users and about what you would like to see in future issues.

The address is 20 years on is

Mailbag Editor
Atari User
Europe House
88 Chester Road
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Stockport SK7 5WY

more more on the technical side of how it is done. Also what is the Policy chip that is often mentioned in articles — A. J. T. Buckton, Manchester

■ The way that the Atari writes information to the tape recorder is in fixed-length blocks of 65536 bytes (approximately 128kbytes). Then a digital timer/counter is used to read or write data to the recorder.

The sound chips inside take in any handles any data stream meaning into or out of your Atari in a set order. I start by (space) 0 data bus 80 square 1 read, then one stop bit (mark).

You could stop send or receive a byte by leaving

what's left first. The recorded data is 128 bytes long and is broken down into marker characters for measurement of speed followed by a control byte then by 128 data bytes and finally a checksum byte.

The chip that was have heard referred to as Policy is in fact the sound chip and was given the name when the machine was first built.

The chip was fine and is not available in any other form and like the other new chips made the noise such as And a and G14 was given a name. The Policy chip also creates all the sound output that are available from Atari allowing you to play superb sound sample

Taxman's warning

IN THE article 'Check up on the taxman' published in the June issue of Atari User there were some errors.

Overall it would be useful for your readers to rely on the accuracy of the routine for checking their PAYE tax deductions. For the majority the routine will be in error by factor only but for those whose taxable pay averaged over about £240 per week the error could be quite large. — G. G. Lawton, Island Savings

Wrong listings?

I READ your magazine every month and find it very interesting. But whenever I type in one of your listings it never works so I write it and replace it checking every character and they still never work. So I have come to the conclusion that some of them work and that your listings are all printed wrong.

Could you please explain how the second program's work. — G. Gilling, Wile

■ All the listings are taken directly from working programs and they are checked before we publish them so that they are correct. The problem is that even a small typing error will stop them working.

Take a lot of care when you type them in and make use of the Get & Right program that we published in the August 1985 issue of Atari User. This program will help you in your efforts correct your typing errors and get a working program.

There are many complex ways of producing sound on Atari home computers, but it really doesn't come back to the Basic sound command. This takes the form of SOUND 118 to 10 and the numbers shown can

Adapting an Apple drive

I RECENTLY purchased a pair of Apple II disc drives which my firm had adapted. When I tried to plug them into my 8000, I found that there appears to be no socket for it to fit in. On the back of the disc drive there is a 20 way ribbon cable and a label giving a warning — connect the cable only to the Apple II interface card. I have one of these and now know that the drives are single side double density 40 track, 80 sectors per inch.

Could the disc drive be a disc analogue card as can you please explain to me

why I cannot use these drives on my system. What modifications would I need to make and would I need to use the interface card? If so how would it connect to my 8000. Would I also need a separate power supply as the drives take their power supply from the computer and when connected would commercial software run on the drive? — J. A. Graham, Essex

■ The disc drives on the Apple II computers are rather different from most other drives as they use a lot of electronic interfacing

This is why the interface card must be bought to use with the Apple II.

Unfortunately an awful lot of work on the electronics would have to be done to make it compatible with an Atari computer. It would probably not be worth the trouble when you could sell the drives and put the money towards a fully compatible Atari 1600 disc drive.

You would get Dos and the correct lead and a power supply and you would have no problem running any of the commercial software available.

be changed to any other number within the parameters of the SOUND statement.

The first number indicates which sound channel you wish to use in the range 0 to 3 and the second number indicates the note you want to use. This can range from 0 to 255 giving you a lot of variety.

The third number indicates the duration level of the note with the number 10 indicating a pure note. This number can range from 0 to 14 in even numbers only.

Finally the fourth number indicates the volume level of the note and this ranges from 0 to 63 with 16 being the loudest. By experimenting with this command you will be able to create some very interesting sound effects, and it was only in the front-line section of this issue of *Amiga User* you will find a program that will turn your computer into an electronic organ.

Adding a modem

I AM interested in adding a modem to my Amiga 200 using so that I can access MergLink as advertised in *Amiga User*. However, I am not clear exactly what sort of card and what additional software and interfaces will be required. Can I access MergLink through MergLink? — Chris Read, Milton, Keynes

■ Adding a modem to your system is not as expensive as many people think and can be very useful.

There are several available for you to choose from. Prices range from £120 for a manual modem to a few hundred pounds for ones which will do the MergLink number for you automatically.

You will also need an ISDN interface box or a lead to connect your Amiga 200 directly to a modem. You will also require a commu-

cations program.

Unfortunately you cannot access MergLink at present but it may be possible in the future although no definite date has been set.

Holiday tips

FOUR readers may be interested in an idea I recently used to help me enjoy my holiday better. One of the things I always want to bring back home is to bring postcards, so I used *Amiga Office 1.0* to help.

Before I departed I set up a database file of my friends' names and used the label printer to print them out on sticky labels. Then I printed out an equal number of labels with the following text on them:

Having a great time in London. Hope to be back soon. I shall send you postcard as well as the sticky labels. Love and friend, John Doe.

It was then just a matter of fixing two columns and a space to the cards, deleting the appropriate words and adding them. I hope the time saving idea will enable you to make to enjoy their holiday rather than waste them writing cards. And when it comes to Christmas, I've got the names on the ready to address the envelopes of the cards — John Jones, Glynd.

Converter converted

OF MATHEMATICIAN'S live has been converted to the personal computer in the May issue of *Amiga User* is great. However, rather than answering A-02811600 question, I find that adding 0.000000 to the end of a list will make the number more useful.

Steve Spence in *Code Whisker's Amiga* from the March issue of *Amiga User*

I've hardly been able to get *Amiga User* for my wife playing on the lavatory. It's a great program and if she just let me what she's lost I could probably afford an ST by now.

Finally in the mass formatter by Colin Cooper in the June issue of *Amiga User* the text is hidden in line 2 by `POKE%0,0`. I suspect `POKE%0,0` has also included a `POKE` instruction in line 0 to inhibit the cursor in the window when an error message is displayed. This seems to have used `POKE $2,0` on these two lines.

Support missing

On the May issue of *Amiga User*, which my son kept away from me, there was a letter from someone who had sent for something from Commodore Support UK advertised in your magazine. They had not received it.

I also sent for something from them costing £20.00.

We have been trying to contact them since August 1988. Although we asked the help of Commodore services all we got was promises.

After letters sent by our laptop there was still no answer, so we applied for a court summons. We were given a judgement against Mr. Cameron of Commodore Support UK.

The court have told us that there is no one or any goods at 150 Parkway Street — Mrs. M. C. Sanderson, Gillingham, Rochester, York.

Mass formatter

HOW I received the June 1987 issue of *Amiga User* and very great enjoyment out of reading it. I would like to say it is one of the best issues I have read since it started.

The only problem I have

noticed was in the Five Lines Mass Formatter program.

In lines 3 and 5 the listing showed three brackets which are not on the key board.

They are meant to be the class screen character (CHARACTER) which is obtained by pressing Escape + Control + Clear — A. B. D. Malt, Hants.

Display lists

I HAVE had an Amiga 2000, for two years and would like to know what a display list is? I know it has something to do with the graphics mode but that seems to be the limit of my knowledge on this subject — B. Wain, Dorkley, Manchester.

■ The display list is a series of numbers that describes the way in which the graphics chip — Amiga must display the screen. The address pointer is where the display list begins in address 00000000 (00000000). The July to December 1988 issues of *Amiga User* contained a comprehensive guide to the subject.

Cursor flashing

I WAS delighted to see my custom drawing cursor printed in the Five Lines edition of the June issue of *Amiga User*.

Unfortunately I have to admit that it is not on the safe as printed, which results in cursor users not having the problem again. I am pleased to report it is printed in the next. The program does work for now.

The fix is to replace the seventh number in the display line 0 in 040 by 30. Line 30 should now read:

```
00 0000 0000 0000 0000 0000 0000 0000
00 0000 0000 0000 0000 0000 0000 0000
```

— B.M. Black, Preston, Lancs.

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– Anthony Glenn, writing about the Atari ST version in the May 1985 issue of the Atari User

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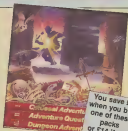
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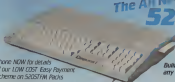
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